APPLIED ECONOMETRICS
(Third quarter)

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Lectures:	Thursday, Friday		9:00-10:30	Room: 40.146
Seminars:	102	Wednesday	13:00-14:30	Room: 40.153
	103	Wednesday	14:30-16:00	Room: 40.153

Objectives

The course will introduce the student into the empirical analysis of some economic issues using econometric techniques.

The course will be organized around some economic topics, closely related to some papers in the literature. There will be a general emphasis on the usual stages in applied work in economics:

- How to define the question to be analyzed (objective)
- The economic theory framework corresponding to the empirical model
- The type of data necessary (and available) for the analysis
- The econometric techniques adequate for the exercise given the characteristics of the data and the model
- The interpretation of the results
- The elaboration of the conclusions

The course will pay specific attention to the econometric techniques used in the different topics.

Prerequisites

Similar to those in the Econometrics I, II and III courses in the grade of Economics at Universitat Pompeu Fabra, i.e:

- Basic knowledge of the concepts of statistical inference, hypothesis testing and maximum likelihood estimation
- Knowledge of the regression model and consequences of problems of internal and external validity
- Basic knowledge of instrumental variables, time series and dynamic causal effects
- Basic knowledge of microeconometrics: discrete choice models, limited-dependent variables models, panel data

Organization

Teaching consists of 19 lectures and 6 seminars of 1.5 hours each. The econometric methodologies and the discussion of an empirical application associated to each topic will be developed in the lectures. Seminars will be devoted to the discussion of empirical homework exercises, one for each topic, and also to the presentation of the contents of published papers related to empirical applications of the econometric techniques of each topic. Students will be asked to write an essay based on an empirical exercise they have to do with real data, to be presented in the last two lectures of the course. In order to practice team work, homework exercises, presentations of papers and the essay are expected to be done in groups of 3-4 people belonging to the same seminar group.

The solutions of the assignments should be sent by mail, as a *pdf* file, before the date of the corresponding seminar. The deadline for handing in the essays is June 6.

Participation and asking questions are highly encouraged in lectures and seminars.

Evaluation

In order to pass the course, the student should obtain at least 50 points out of 100, minimum of 20 from the exam, according to the following distribution:

Paper presentation: 15 points

Empirical essay and presentation: 25 points

Exam: 60 points

For those not passing the course in June and who have obtained at least 15 points in the exam and have attended and participated in the seminars, there will be a second chance to take the exam in July.

Syllabus

1. Multinomial discrete choice models (MDCM)
    - ✓ Independence of Irrelevant Alternatives
    - ✓ Nested Logit
    - ✓ Mixed Logit

2. Forecasting realized volatility (FRV)
    - ✓ High frequency data versus daily data
    - ✓ Models for high frequency data (AR, HAR, GARCH, GARCH-RV)
    - ✓ Forecasting. Comparison of forecasts

3. Forecasting inflation (FI)
    - ✓ Characteristics of inflation

- ✓ Models for inflation (AR, VAR, DFM)
- ✓ Forecasting. Comparison of forecasts

4. Duration models (DM)
   - ✓ Basic concepts
   - ✓ Continuous time models
   - ✓ Unobserved heterogeneity

5. Policy Evaluation Methods (PEM)
   - ✓ Differences in differences
   - ✓ Propensity score matching
   - ✓ Regression discontinuity design

There will also be additional empirical references for each topic to be discussed in the presentations.

The econometric contents of the topics can be followed using the lecture notes and the following textbooks:

Jones, A., *Applied Econometrics for Health Economists: A Practical Guide*, Radcliffe Publishing, 2007 (basic)

Greene, W.H., *Econometric Analysis*, Prentice Hall, 2008 (intermediate)

Cameron, A.C. and Trivedi, P.K., *Microeconometrics. Methods and Applications*, Cambridge University Press, 2005 (advanced)

Cameron, A.C. and Trivedi, P.K., *Microeconometrics using STATA*, STATA Press, 2010 (advanced)

Stock, J.H. and Watson, M.K., *Introduction to Econometrics*, Addison-Wesley, 2010

Wooldridge, J.M., *Econometric Analysis of Cross-Section and Panel Data*, MIT Press, 2010 (advanced)

Course plan

Lecture	April 9	Multinomial Discrete Choice Models	Jaume García
Lecture	April 10	Forecasting Realized Volatility	Geert Mesters
Lecture	April 16	Multinomial Discrete Choice Models	Jaume García
Lecture	April 17	Forecasting Realized Volatility	Geert Mesters
Lecture	April 24	Multinomial Discrete Choice Models	Jaume García
Lecture	April 30	Forecasting Realized Volatility	Geert Mesters
Seminar	*May 6*	*Assignment MDCM*	*Jaume García*
Lecture	May 7	Forecasting Inflation	Geert Mesters
Lecture	May 8	Forecasting Inflation	Geert Mesters
Seminar	*May 13*	*Assignment FRV*	*Geert Mesters*
Lecture	May 14	Forecasting Inflation	Geert Mesters
Lecture	May 15	Duration Models	Jaume García
Seminar	*May 20*	*Papers' presentations*	*Jaume García*
Lecture	May 21	Duration Models	Jaume García
Lecture	May 22	Duration models	Jaume Garcia
Seminar	*May 27*	*Assignment FI*	*Geert Mesters*
Lecture	May 28	Policy Evaluation Methods	Sergi Jiménez
Lecture	May 29	Policy Evaluation Methods	Sergi Jiménez
Seminar	*June 3*	*Assignment DM*	*Jaume García*
Lecture	June 4	Policy Evaluation Methods	Sergi Jiménez
Lecture	June 5	Assignment PEM	Sergi Jiménez
Seminar	*June 10*	*Papers' presentations*	*Jaume García*
Lecture	June 11	Essays' presentations	Jaume García
Lecture	June 12	Essays' presentations	Jaume García

Assignments

Communication of the composition of the groups: April 17
(the same group for assignments, presentations and essay)

Deadline

Hand in the day before the corresponding seminar by mail to the following address: applied.econometrics.upf@gmail.com (as a pdf file)

Papers' presentations

Communication of the date of the presentation: April 24

Papers available: May 14 for those to be presented in May 20
June 4 for those to be presented in June 10

Written report: Summary of the paper with the following structure:

- Objective
- Theoretical framework
- Econometric specification
- Main issues related to the data
- Main results and conclusions
- Weak aspects of the paper
- Improvements

Maximum extension: 10,000 characters including blanks

Hand in the written report and the slides (*pdf* files) the day before the presentation by mail the address above

Essay

Communication of the topic: May 2

Hand in the written report and the slides (*pdf* files) by June 11 to the mail address above